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ECONOMIC AND PRODUCTION IMPLICATIONS OF AN ASSUMED SOVIET GUIDED MISSILE PROGRAM 1954 to 1963

(CHR CONTRIBUTION BASED ON THE COORDINATED INTELLIGENCE ASSUMPTIONS FOR THE SPECIAL NESS PROJECT, 1959)

CIA/RR IP-59-16

(CER Project No. 37.2492)

21 May 1959

THIS MATERIAL CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITSIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18, USC, SECS. 793 AND 794, THE TRANSMISSION OR REVELATION OF WHICH IN ARY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

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FOREWORD

The set of tables in this contribution provide representative costs and production schedules consistent with an assumed Soviet guided missile program based on the Coordinated Intelligence Assumptions for the NESC Project, 1959.

The methodology used and the limitations prescribed in CIA/RR IP-634 dated 8 September 1958 remain unchanged in the preparation of this contribution.

TABLE I

Number of Guided Missiles In Operational Stockpile, by Year, 1954-1963

(Numbers of Missiles, Cumulative at End of Year)

WIR 11-5-58 Designation	Wid-1963 Stockpile	<u>1954</u>	1955	1956	1957	1958	1959	1960	1961	1962	1963
Surface-to-Surface Ballistic			COLUMN TO SERVICE AND ADDRESS OF THE PARTY O		Miles on Manager and America College	Sidefrontier erabalises som Utbeller von	E a reconstitution of	PLEASURE AND ADDRESS OF THE ADDRESS	The same little of the same and same a		ariad elementerskepping
SS-1* (100 n.m.) SS-2* (200 n.m.) SS-3* (300 n.m.) SS-4 (700 n.m.) SS-5 (1,100 n.m.) SS-6 (ICEM)	3,000 1,500 750 400 500 750	100 40 30	200 150 100	450 300 150 10	350 450 200 30	1,250 600 250 190 10	2,000 1,050 450 300 300 20	2,750 1,500 650 400 200 125	3,000 1,500 750 400 320 375	3,000 1,500 750 400 440 625	3,000 1,500 750 400 560 375
Surface-to-Surface Naval	in the state of th				W.		90				
SS-7 (200 n.m. Submarine) SS-8 (1,000 n.m. Submarine)	250 150		5 v	4	8	20	64	155	250	250 20	250 360
Air-to-Surface					12,					-	300
AS-1* (55 n.m.) AS-2* (250 n.m.)	450 700				113	337	450	i,50	450 175	450 525	450 875
Air-to-Air											
AA-1× AA-2 AA-3 AA-4	12,000 14,000 1,200			1,000	2,900 2,900	3,800 4,800 2,900	3,000 6,700 13,100	3,600 8,600 23,500 1,400	1,600 10,500 23,500 4,200	12,000 17,600 4,200	12,000 10,400 4,200

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TABLE I (Continued)

Number of Guided Missiles in Operational Stockpile, by Year, 1954-1963

(Numbers of Missiles, Cumulative at End of Year)

NIE 11-5-58 Designation	Mid-1963 Stockpile	1954	<u> 1955</u>	1956	<u>1957</u>	1958	1959	1960	1961	1962	1963
Surface-to-Air (Ground-Launched)											
SA-1 (Moscow Sites) SA-2 SA-3* SA-4*	-0- 17,500 22,500 27,000	2,640	7,900	13,400	12,900 527	8,600 4,618	2,600 9,899	15,178 3,700	20,459 11,200 6,800	21,750 18,250 20,400	13,750 26,250 34,000
Surface-to-Air (Naval-Launched)										
SA-6 (Naval) SA-7 (Naval)	1,300		0.0	·			150	450	პ50 100	1,150 400	1,450
As appearing in 1970 assum		ted here			g.	 				٠	

Number of Operational Units Deployed and Equipped with Missiles, by Year, 1954-1963
(Number of Units, Cumulative at End of Year)

	NIE 11-5-58 Designation	1954	<u>1955</u>	1956	1957	1958	1959	1960	1961	1962	1963
Surface	-to-Surface Ballistic						-				Harrist of the State of the Sta
SS-1 SS-2 SS-3 SS-4 SS-5 SS-6	(100 n.m.) (200 n.m.) (300 n.m.) (700 n.m.) (1,100 n.m.) (ICBM)	1	4 3 2	9 6 3 2	17 9 4 11	25 12 5 21 2	40 21 9 32 9	555 30 13 40 20	60 30 15 40 32	60 30 15 40 44 62	60 30 15 40 56 87
Surface	-to-Surface Naval										
88-7 88-8	(200 n.m. Submarine) (1,000 n.m. Submarine)			- 1	. 2	4	10	- 53	36 7	36 10	36 1 3
Air-to-	Surface										
AS-1 AS-2	(55 n.m.) (250 n.m.)				22	67	90	90	90 35	90 1 05	90 175
Air-50-	<u>ur</u>			**							
AA-1. AA-2				120	360 360	480 600	480 840	450 1,030	200 1,320	1,520	1,520

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TABLE II (Continued)

Number of Operational Units Deployed and Equipped with Missiles, by Year, 1954-1963 (Number of Units, Cumulative at End of Year)

NIR 11-5-58 Designation	1954	<u>1955</u>	1956	<u>1957</u>	1958	1959	1960	1961	1962	1963
AA+3 AA=4					360	1,640	2,940 200	2,940 600	2,200 600	1,300 600
Surface-to-Air (Ground-Launched) SA-1 SA-2 SA-3 SA-4	11	33	56	54 4	36 35	11 75	115 25	155 75 50	165 125 150	104 175 250
Surface-to-Air (Naval-Launched) SA-6 Destroyers Cruisers SA-7 Cruisers						1	7 1	13	1.9 2	25 2
Cruisers								1	4	10

TABLE III

Summary of Offensive Missile Production and Units
Deployed by Missile and Year, 1954-1963

NIE 11-5-58 Designation	-	Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	1954	1955	1956	<u>1957</u>	1958	1959	1960	1961	1962	1963	Totals
SS-1 (100 n.m.)	Missiles Produced Units Deployed	60	30	112	288 3	400 5	500 8	500 8	700** 15	700 15	400 5			3600 60
SS-2 (200 n.m.)	Missiles Produced Units Deployed	42	24	50 1	150 2	200	200 3	200	500** 9	500 9				1800 30
SS-3 (350 n.m.)	Missiles Produced Units Deployed	19	30	32 1	-68 1	75 1	75 1	75 1	225** 4	225 4	125 2			900 15
SS-4 (700 n.m.)	Missiles Produced Units Deployed	11,	39			24 2	105 9	132	132**	110	-			500 40
SS-5 (1,100 n.m.)	Missiles Produced Units Deployed	12	51.						1.09*** 7	144 11	144 12	144 12	144 12	710 56
SS-6 (ICBM)	Missiles Produced Units Deployed	25	36	- :				-21 1272	40 3	140 9	300	300** 25		1030 87
88-7 (200 n.m. Sub.)	Missiles Produced Converted Submarines Wew Conventional	10	24			5 1	5 1	15 1	48 3	116 4	116 4	,	- J.	310 14
	Submerines							1	3	ŷ	9			22

TABLE III (Continued)

Summary of Offensive Missile Production* and Units Deployed by Missile and Year, 1954-1963

			The second secon												
NIE 11-5-58 Designation		3,	Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	Totals
SS=3 (1,000 n.m.	Missiles Produced Submarines Deployed	×	40	7		and the state of t		·			-	O' Stone of		7()	
Sub.)	200964									3.	3	3	50 3	430 3	480 13
AS-1 (55 n.n.)	Missiles Produced Aircraft Deployed	A	25	18				150 22	300 45	150					600
AS-2	Missiles Produced		44	24					',	~ J					90
(250 n.m.)	Aircraft Deployed	1										262 35	525 70	525 70	1312 175

^{*} Production figures in this table represent total production which, in addition to operational deliveries (shown in Table I), allows for missiles allocated for static and laboratory tests, production slippage, other degradation of all types and missiles expended for training purposes.

** Change from radar/radio command to all inertial system.

TABLE IV

Summary of Defensive Missile Production and Units
Deployed by Missile and Year, 1954-1963

NIE 11-5-58 Designation		Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	Totals
AA-1.	Missiles Produced Aircraft Deployed	280	18			1,680 120	3,360 240	1,680 120					antificani de la company	6,720 430
AA-2	Missiles Produced Aircraft Deployed	280	72			1,680	3,360 240	3,360 240			3,360 240	2,810 200		21,290 1,520
AA-3	Missiles Produced Aircraft Deployed	1,150	24					3,70 0 360	13,500 1,280	13,800				31,000 2,940
AA-4	Missiles Produced Aircraft Deployed	420	12							2,500 200	5,000 400			7,500 600
SA-1.	Missiles Produced Units Deployed (Moscov)	580	24	3,470 11	6 , 940 2 2	6,940 23								17,360 56
8A-2	Missiles Produced Units Deployed	560	42				675 4	5,237 31.	6,759 40	6,759 40	6,759 40	1,690 10		27,879 165
SA-3	Missiles Produced Units Deployed	800	3 6						,	4,800 25	9,600 50	9,600 50	9,600 50	33,600 175

TABLE IV (Continued)

Summary of Defensive Missile Production and Units Deployed by Missile and Year, 1954-1963

	Monthly Missile Production at Peak Rate	Number of Months at Peak Rate	<u> 1954</u>	<u>1955</u>	1956	<u> 1957</u>	19 58	1959	1960	1961	1962	<u>1963</u>	Totals
Missiles Produced Units Deployed	1,450	24								8,700	17,400	17,400	43,500
Missiles Produced Destroyers Deployed Cruisers Deployed	30	54						300 1	360 6	360 6	360 6	360 6	250 1,740 25
Missiles Produced Cruisers Deployed	60	12								120	360 3	720 6	2,200 10
	Units Deployed Missiles Produced Destroyers Deployed Cruisers Deployed Missiles Produced	Missile Production at Peak Rete Missiles Produced 1,450 Units Deployed Missiles Produced 30 Destroyers Deployed Cruisers Deployed Missiles Produced 60	Missile Production at Peak Rate Rate Missiles Produced 1,450 24 Units Deployed 30 54 Destroyers Deployed 30 54 Missiles Produced 60 12	Missiles Produced 1,450 24 Missiles Produced 1,450 24 Missiles Produced 30 54 Destroyers Deployed Cruisers Deployed Missiles Produced 60 12	Missile of Production at Peak Rate 1954 1955 Missiles Produced 1,450 24 Units Deployed 30 54 Destroyers Deployed Cruisers Deployed Missiles Produced 60 12	Missile Production at Peak Rate 1954 1955 1056 Missiles Produced 1,450 24 Units Deployed 30 54 Missiles Produced 30 54 Missiles Produced 60 12	Missile Production at Peak Rate 1954 1955 1956 1957 Missiles Produced Units Deployed Missiles Produced 30 54 Destroyers Deployed Missiles Produced 60 12	Missile Production at Peak Rate 1954 1955 1956 1957 1958 Missiles Produced 1,450 24 Units Deployed 30 54 Destroyers Deployed 30 54 Missiles Produced 60 12	Missile O2 Months at Peak Rate 1954 1955 1956 1957 1958 1959	Missile O2 Months at Peak Rate 1954 1955 1956 1957 1958 1959 1960	Missile O2 Months at Peak Rate 1954 1955 1956 1957 1958 1959 1960 1961	Missile Production at Peak Rate 1954 1955 1956 1957 1958 1959 1960 1961 1962	Missile Production at Peak Rate 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963

TABLE V

Comparison of Total Cost of NESC Project 1959 Program and Projected Soviet Military Expenditure by Year, 1954-1963 (Billions of 1957 Dollars)

erialization distributions and appear of the above to have been appeared to	1954	1955	1956	<u>1957</u>	1958	1959	1960	1961	1962	1963
USSR Military Expenditures	41.5	43.2	43.1	40.3	41.0	1;1;. ?;	47.9	51.6	54.8	55.8
NESC 1959 Program	0.4	ာ.8	1.1	1.4	2.5	5.0	8.1	10.3	12.2	14.3
NESC 1959 Program		;								
as percent of Mlitary Expenditures	1.0	1.9	2.6	3.5	6.1	11.3	16.9	20.0	22.3	25.6

TABLE VI

Total Costs of NESC Project 1959 Program
by Category of Missiles
(Billions of 1957 Dollars)

AND	Initial Investment	Operating Costa	Total	Percent of Notal
Surface-to-Air		Andrew Communication of the Co	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	THE REAL PROPERTY OF LAND PROPERTY OF LAND PROPERTY OF THE PRO
Ground-Launcked	13.0	5.4	18.4	32.7
Surface-to-Air				
Ship-Launched	1.8	0.4	5.5	3.9
Air-to-Air	1.7	1.9	3.6	6.4
Air-to-Surface	0.5	0.5	1.0	1.8
Jurface-to-Surface				
(up to and including				
700 n.m.)	4.0	5.6	9.6	17.2
Surface-to-Surface				
Submarine-Launched	2.5	0.3	2.8	5.0
RPM (1,100 n.m.)	3.2	1.9	5.1	9.0
CEM (5,500 n.m.)	10.2	3.2	13.4	24.0
frank a	The state of the s	3.2	 5••	£4.0
TOTAL	36.9	19.2	56.1	100.0

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TABLE VII

Yearly Costs of NESC Project 1959 Program, 1954-1963
(Billions of 1957 Dollars)

	<u> 1954</u>	1955	1956	1957	<u>1958</u>	1959	1960	1961	1962	1963	Total
Initial Investment Annual Operating	.4	.7 .1	.9 .2	.9	1.8	3.9	6.2	7.0	7.3	7.8	36.9
		•2	• «	•5	.7	1.1	1.9	3-3	4.9	6.5	19.2
TOTAL	.4	-8	1.1	1.4	2.5	5.0	8.1	10.3	12.2	14.3	56.1

TABLE VIII

Total Investment and Operating Costs of NESC Project 1959 Program by Missile System

NIE 11-5-53 Designation	Investment Costs		Operating Costs		Total Costs	
	Billions 1957 Dollars	Percent of Total	Billions 1957 Dollars	Percent of Total	Billions 1957 Dollars	Fercent of Total
SS-1 SS-2 SS-3 SS-4 SS-5 SS-6 SS-7 SS-8	1.2 0.7 0.4 1.7 3.2 10.2 0.9 1.6	3.2 3.9 1.1 4.6 8.7 27.7 2.4 4.3	0.8 0.6 0.7 3.5 1.9 3.2 0.1	4.2 3.1 3.6 18.2 9.9 16.7 0.6	2.0 1.3 1.1 5.2 5.1 3.4 1.0	3.6 2.3 1.3 9.1 23.9 1.8 3.2
AS-1 AS-2	0.2 0.3	0.5 0.8	0.3 0.2	1.6	0.5	0.9 0.9
A1. A2 SAA A1.	0.2 * 1.2 0.3	0.5 3.2 0.8	0.1 0.2 1.4 0.2	0.6 1.0 7.3 1.0	0.3 0.2 2.6 0.5	0.5 0.4 4.6 0.9
SA-1 SA-2 SA-3 SA-4 SA-6 SA-7	1.4 2.2 3.8 5.6 0.9	3.8 6.0 10.4 15.3 2.4 2.4	1.2 2.2 1.0 1.0 0.3	6.2 11.4 5.2 5.2 1.6 0.6	2.6 4.4 5.6 1.2 1.0	4.6 7.8 8.6 11.8 2.1 1.8
TOTAL	36.9	300.0	19.2	100.0	55.1	100.0

^{*} Tess than 50 million dollers.